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# United States Patent [19]

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[54] **COMPUTER-AIDED SYSTEM FOR  
REVISION TOTAL HIP REPLACEMENT  
SURGERY**

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128/922; 128/923**

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128/923; 364/413.13; 623/16, 66; 600/425,  
427**

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[57] **ABSTRACT**

Computer implemented systems and methods for removing bone cement or other material to replace a bone prosthesis is provided. A computer aided method of replacing a bone prosthesis according to the present invention comprises the steps of: receiving as input image data of a bone; identifying bounding contours of material in the image data surrounding a first bone prosthesis for removal; and generating system contours from the bounding contours, the system contours specifying a cavity to be cut in the bone to accommodate a second bone prosthesis.

**12 Claims, 12 Drawing Sheets**

